

IT IS CLAIMED:

1. A transgenic plant comprising a plant transformation vector comprising a nucleotide sequence that encodes or is complementary to a sequence that
5 encodes a DRO3 polypeptide comprising the amino acid sequence of SEQ ID NO:2, or an ortholog thereof, wherein said transgenic plant has increased drought tolerance relative to control plants.
2. The transgenic plant of claim 1 wherein the transformation vector
10 comprises a constitutive promoter that controls expression of the DRO3 polypeptide or ortholog.
3. A plant part obtained from the plant according to claim 1.
- 15 4. The plant part of claim 3, which is a seed.
5. A method of producing increased drought tolerance in a plant, said method comprising:
 - a) introducing into progenitor cells of the plant a plant transformation vector comprising a nucleotide sequence that encodes or is complementary to a sequence that
20 encodes a DRO3 polypeptide comprising the amino acid sequence of SEQ ID NO:2, or an ortholog thereof, and
 - b) growing the transformed progenitor cells to produce a transgenic plant, wherein said polynucleotide sequence is expressed, and said transgenic plant exhibits increased drought tolerance.
- 25 6. A plant obtained by a method of claim 5.
7. A method of generating a plant having an increased drought tolerance phenotype comprising identifying a plant that has an allele in its DRO3 gene that results in increased
30 drought tolerance compared to plants lacking the allele and generating progeny of said identified plant, wherein the generated progeny inherit the allele and have the increased drought tolerance phenotype.
8. The method of claim 7 that employs candidate gene/QTL methodology.

9. The method of claim 7 that employs TILLING methodology.